

Appl. No. 10/519,237
Election With Traverse dated June 17, 2008
Reply to Restriction Requirement of 03/19/2008
Attorney Docket No. 1217-045843

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| Appl. No. | : | 10/519,237 | Confirmation No. 2512 |
| Applicants | : | Shizue ITOU et al. | |
| Filed | : | December 23, 2004 | |
| Title | : | Radio-Controlled Watch | |
| Art Unit | : | 2833 | |
| Examiner | : | Jeanne M. Goodwin | |
| Customer No. | : | 28289 | |

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

ELECTION WITH TRAVERSE and AMENDMENT

Sir:

In response to the Office Action dated March 19, 2008, Applicants submit the following Election with Response, amendments and remarks, along with a two-month Petition for Extension of Time and requisite fee.

Election with Traverse begins on page 2 of this paper.

Amendments to the Specification begin on page 10 of this paper.

Remarks begin on page 12 of this paper.

I hereby certify that this correspondence is being electronically submitted to the United States Patent and Trademark Office on June 17, 2008.

Diane Paul
(Name of Person Mailing Paper)

Diane Paul
Signature

06/17/2008
Date

ELECTION WITH TRAVERSE

In the Office Action of March 19, 2008, the Examiner required a restriction to one of the following species:

- a: The species shown in Figs. 1-5;
- b: The species shown in Fig. 6;
- c: The species shown in Fig. 7;
- d: The species shown in Fig. 8;
- e: The species shown in Fig. 9;
- f: The species shown in Fig. 16;
- g: The species shown in Fig. 17;
- h: The species shown in Fig. 18;
- i: The species shown in Figs. 19-20;
- j: The species shown in Fig. 21;
- k: The species shown in Fig. 22;
- l: The species shown in Figs. 23-25; and
- m: The species shown in Fig. 27.

The Examiner further requested Applicants to identify the claims readable on the elected species.

Applicants hereby provisionally elect for further prosecution the invention of Group (f), the species shown in Fig. 16. Claims 31-61 are readable on the elected species (f).

Applicants respectfully traverse the restriction requirement based on the following arguments. In making the restriction requirement, the Examiner has not given any detailed reasons as to why the various "species" allegedly lack unity of invention.

At least the invention of Groups (g) and (h), namely, Figs. 17 and 18, are the same invention as Group (f); and Groups (f), (g) and (h) are consistent with the requirement of unity of invention.

Moreover, for the reasons set forth hereinbelow, Applicants assert that all of groups (a) to (m) are also consistent with the requirement of unity of invention.

The present invention relates to a radio-controlled watch for receiving a predetermined radio wave including time information and displaying a time. More particularly, the present invention relates to a structure of a case of a radio-controlled watch to enhance a radio wave receiving performance and to improve magnetism-

resistance performance relative to external magnetism in the case in which an ordinary metal watch case is used. Therefore, the present invention consists of a group of inventions so linked as to form a single general inventive concept.

More specifically, it is an object of the present invention to provide a radio-controlled watch case capable of receiving a radio wave which includes predetermined information such as time information without a hindrance for carrying even if an ordinary metal watch case is used, enhancing stable waterproof quality and the quality of an appearance having a sense of high grade, and increasing the same design variation as that of a general watch.

In addition, it is an object of the present invention to provide a radio-controlled watch capable of receiving a radio wave which includes predetermined information such as time information even if a watch case having an antimagnetic plate provided in a case is used, and of holding predetermined timekeeping precision in environments having external magnetism.

Thus, as discussed below, it is clear that these inventions have a technical relationship among those inventions involving one or more of the same or corresponding special technical features.

The features of the species of groups (a) to (m) are set forth below for the Examiner's convenience:

Species shown in Figs. 1-5:

The feature of this species is that a non-magnetic element is located in the housing. That is, the embodiment shown in Figs. 1-3 is the one corresponding to the invention described in claims 1-21, namely, "at least one non-magnetic member fixed to an internal surface of the watch case and having an electric resistivity set to be $7.0\mu\Omega\text{-Cm}$ or less."

Currently, as shown in Fig. 1, non-magnetic members 42 and 43 are provided on the inner side surface 30c of the watch case body 30 and the internal surface 33c of the back cover 33.

In addition, the non-magnetic members 42 and 43 are formed by materials having electric resistivities of $7.0\mu\Omega\text{-Cm}$ or less, and materials thereof are non-magnetic members such as gold, silver, copper, brass, aluminum, magnesium, zinc or their alloy.

Thus, according to the present invention, the non-magnetic member having the electric resistivity of $7.0\mu\Omega\text{-Cm}$ or less is provided in the watch case accommodating the antenna and the watch device. Consequently, it is possible to reduce the disturbance of a resonant phenomenon in the vicinity of the antenna which is caused by a metal material. Therefore, it is possible to obtain sufficient receiving sensitivity also in a metal watch case.

As a result, by using the non-magnetic member having the electric resistivity of $7.0\mu\Omega\text{-Cm}$ or less as a non-magnetic member to be fixed to a watch case in the radio-controlled watch, for example, a watch case body and the internal surface of a back cover, consequently it is possible to use a metal having a high quality appearance such as titanium, a titanium alloy, stainless steel or tantalum carbide which has a low receiving sensitivity, a low frequency selectivity and a high electric resistivity as the watch case, for example, the watch case body and the back cover, without sacrificing the receiving sensitivity. Thus, it is possible to enhance functions in respect of the mechanism and appearance of the watch case.

Moreover, the embodiment shown in Figs. 4-5 is the one corresponding to the invention described in claims 75-80. Namely, it is technically characterized in that "the watch case is constituted by an electrically non-conductive material or a material having a low electric resistivity, and an exterior member formed by an electrically conductive material which is attached to an outside of the watch case is provided."

More particularly, as shown in Figs. 4-5, an electrically non-conductive material such as a resin plate or a material having a low electric resistivity is used and applied to the watch case body 50 and the back cover 51, and the antenna is surrounded by these members, thereby preventing damage to the antenna.

Moreover, the first exterior member 53 and second exterior member 54, which are formed by a thin conductive material such as stainless steel, titanium or a titanium alloy, are installed outside of the watch case. By such a structure, the watch case

for accommodating the antenna is formed by a material having an electrical non-conductivity or a low electric resistivity, and the exterior member attached to the outside of the watch case, particularly the exterior member for covering the external side surface of the watch case body, is electrically conductive, for example, a conductive metal.

Accordingly, as compared with the case in which the watch case itself for accommodating the antenna is formed by a conductive material, a distance between the antenna and the exterior member to be the electrical conductive material, for example, a metal, can be increased. Consequently, the antenna reception is excellent. Thus, the antenna receives a strong radio wave so that performance and precision in the watch are enhanced.

In addition, by the conductive exterior member such as the metal, an appearance having a sense of the metal can be given to the radio-controlled watch. Consequently, a visual recognition is carried out as if the watch case is formed of a solid metal. Therefore, it is possible to prevent a sense of high grade and a fine appearance from being damaged by using a non-conductive material such as a synthetic resin for the watch case.

Species shown in Figs. 6-9:

The feature of this species is that the exterior of the watch case (watch case body and back cover) is composed of a non-magnetic element. That is, the embodiment of Figs. 6-9 is the one corresponding to the invention described in claims 22-30. Namely, it is technically characterized in that "the watch case has at least a part constituted by a non-magnetic member having an electric resistivity of $7.0\mu\Omega\text{-Cm}$ or less, and a surface of the watch case is subjected to surface finishing."

More particularly, as shown in Figs. 6-9, as described below, the watch case has at least a part constituted by a non-magnetic member having an electric resistivity of $7.0\mu\Omega\text{-Cm}$ or less, and a surface of the watch case is subjected to surface finishing.

Fig. 6

| | | |
|---------------------|---|---|
| Non-magnetic member | - | Main body 30d in watch case body 30 (brass) Main body 33d of back cover 33 (brass) |
| Surface finishing | - | Plating layer 30e and 33e on these surfaces (Pd etc.) |

Fig. 7

- Non-magnetic member - Main body of back cover 33 (brass)
 - Surface finishing - Plating layer 33i on surface of back cover 33 (Au-Ti alloy plating layer on the TiN layer)
- Plating layer 30g of watch case body 30 (Au-Ti alloy plating layer on the TiN layer)

Fig. 8

- Non-magnetic material - Filling member 33g of back cover 33 (brass)
- Surface finishing - Plating layer 33h on surface of back cover 33 (gold-cobalt alloy film layer on the TiN layer)

hairline patterning finishing on surface of watch case body 30

Fig. 9

- Non-magnetic material - Watch case body 30 (18K gold alloy material)
- Surface finishing - mirror finishing on surface of watch case body 30

According to these constructions, a part of the watch case, for example, a part of the watch case body, the back cover, the bezel and the like, or at least one of them is formed by the non-magnetic member having electric resistivity of $7.0\mu\Omega\cdot\text{Cm}$ or less. Therefore, the disturbance of a resonant phenomenon in the vicinity of the antenna which is caused by the metal material can be reduced by the non-magnetic member. Consequently, it is possible to obtain sufficient receiving sensitivity also in the metal watch case.

As a result, if the non-magnetic member having electric resistivity of $7.0\mu\Omega\cdot\text{Cm}$ or less is used for a part of the watch case, for example, a part of the watch case body, the back cover, the bezel and the like, or at least one of them in the radio-controlled watch, consequently, it is possible to use a metal having a high quality appearance such as titanium, a titanium alloy, stainless steel or tantalum carbide which has a low receiving sensitivity, a low frequency selectivity and a high electric resistivity as a watch case portion other than the watch case portion formed by the non-magnetic member without sacrificing the receiving sensitivity. Consequently, it is possible to enhance functions in respect of the mechanism and appearance of the watch case.

In addition, surface finishing is carried out over the surface of the watch case portion formed by the non-magnetic member. Therefore, it is possible to design and manufacture a watch case having corrosion resistance, heat resistance, mechanical strength and the like and having a color tone such as a metal color having a sense of high grade and high quality of an appearance, for example, a watch case body, a back cover, a bezel and the like in the same manner as in a general watch which is not the radio-controlled watch. Thus, the design variation of the case in the radio-controlled watch can be increased equivalently to the general watch.

Species shown in Figs. 16-18

The feature of this species is the arrangement (f)-(g) of the antenna in the watch case of full metal, and the arrangement of the antenna in the watch case of full metal and plating (h) of a non-magnetic material.

That is, the embodiment of Figs. 16-18 is the one corresponding to the invention described in claims 31-61. Namely, it is technically characterized in that the watch case is composed of the metal and the following features are selected:

- (i) distance of inside of watch case and antenna;
- (ii) a body thickness T1 of the watch case body of the watch case;
- (iii) a gap D1 from the internal surface of the watch case body to the antenna;
- (iv) a back cover thickness T2 of a back cover; and
- (v) a distance D2 between the antenna-26 and the internal surface of the back cover.

More particularly, as shown in Figs. 10-18, a body thickness T1 of a watch case body 25, a distance D1 between an antenna 26 and the internal surface of the watch case body 25, a back cover thickness T2 of a back cover 27, and a distance D2 between the antenna 26 and the internal surface of the back cover 27 are selected as parameters.

According to the present invention, the watch case is constituted by a metal and a distance between the antenna and the watch case, that is, a body thickness T1 of the watch case body of the watch case, a back cover thickness T2 of the back cover of the watch case, a gap D1 from the internal surface of the watch case body to the antenna, and

a gap D2 from the internal surface of the back cover to the antenna are set based on a receiving sensitivity. Consequently, it is possible to reduce the disturbance of a resonant phenomenon in the vicinity of the antenna which is caused by a metal material. Therefore, it is possible to enhance the receiving sensitivity also in the metal watch case.

Thus, it is possible to use a metal having a high quality appearance such as titanium, a titanium alloy, stainless steel or tantalum carbide which has a low receiving sensitivity, a low frequency selectivity and a high electric resistivity as the watch case, for example, the watch case body, the back cover, the bezel or the like without sacrificing receiving sensitivity. Consequently, it is possible to enhance functions in respect of the mechanism and appearance of the watch case.

Species shown in Figs. 19-25

The feature of this species is that an antimagnetic plate is installed in the watch case. That is, the embodiment of Figs. 19-25 corresponds to the invention described in claims 62-74. Namely, it is technically characterized in that "the antimagnetic plate provided in the watch case has an opening portion in an opposed part to the antenna."

More particularly, as shown in Figs. 19-25, the antimagnetic plate 38 for preventing an influence of an external magnetism, which is formed of such as ferrite type stainless steel (for example, SUS430), is provided in the watch case 12 and the opening portion 38b is provided in an opposed part to the antenna 32.

Thus, the antimagnetic plate provided in the watch case has the opening portion in the opposed part to the antenna. Consequently, the antenna can receive a radio wave through the opening portion without the influence of the antimagnetic plate. Thus, it is possible to protect the watch device from an external magnetism also in the radio-controlled watch without deteriorating a radio wave receiving performance. Thus, it is possible to enhance precision in the watch without an influence on the driving operation of a hand.

Species shown in Fig. 27

The feature of this species is that the prior art structure of the radio-controlled wristwatch that uses the metal for a part of a case was shown. That is, it is only shown in the prior art that watch case body 11 is composed of stainless steels, and the back cover

12 is composed of glass 23, and there is a problem in that the glass 23 is broken if a shock is applied, for example, if the watch is dropped.

Conclusion

As discussed above, it is clear that the invention of groups (a) to (i) would have a technical relationship among those inventions involving one or more of the same or corresponding special technical features.

Based on the above remarks, the Examiner's reconsideration is respectfully requested and that the species of groups (a) to (i) be subject to examination, or at the very least, that the invention of groups (f), (g) and (h), namely, Figs. 16-18 corresponding to claims 31-61, are the same invention and should be prosecuted together.

Applicants hereby reserve the right to prosecute non-elected claims and species by way of a divisional application filed at a later time. Pursuant to 37 C.F.R. § 1.48(b), there is no change in inventorship as a result of this Election.